

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer implemented method comprising:

~~first translating a first plurality of representations of a plurality of parts of a plurality of sub-assemblies of an mechanical design assembly to a second plurality of representations of the parts of the sub-assemblies of the mechanical design assembly translating a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and~~

~~thereafter, translating one or more assembly constraints of said the mechanical design assembly by correspondingly constraining geometric entities within said translated representations that are counterpart to geometric entities of said pre translation representation constrained by said one or more assembly constraints, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system.~~

2. (Currently Amended) The method of claim 1, wherein ~~said translating of first representations of said parts of said sub-assemblies translating a first representation of parts or sub-assemblies into a second representation~~ comprises tracking correspondence between said first and said second plurality of representations of said parts and sub-assemblies of the mechanical design assembly during said translation~~the first and second representations during the translation.~~

3. (Currently Amended) The method of claim 1, wherein said translating of one or more assembly constraints comprises identifying said ~~counterpart~~ geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and correspondingly constraining said counterpart geometric entities within said translated representations.

4. (Currently Amended) The method of claim 3, wherein said identifying comprises identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

selecting a plurality of spatial sampling points for each of said identified ~~geometry~~geometric entities within said pre-translation representations, ~~constrained by said one or more assembly constraints~~, and

for each of said identified ~~geometry~~geometric entities within said pre-translation representations, applying ~~its~~the selected spatial sampling points to corresponding geometric entities within said translated representations to identify ~~its~~the counterpart ~~geometry~~geometric entities.

5. (Currently Amended) The method of claim 1, wherein said one or more assembly constraints comprise a selected one of a mating constraint and a flush constraint constraining on at least a first and a second ~~sub-assembly/part~~sub-assembly or part of said ~~first~~plurality of ~~sub-assemblies/parts~~mechanical design assembly.

6. (Currently Amended) The method of claim 1, wherein said one or more assembly constraints comprise a selected one of an angle constraint and a rotational constraint constraining on at least a first and a second ~~sub-assembly/part~~sub-assembly or part of said ~~first~~plurality of ~~sub-assemblies/parts~~mechanical design assembly.

7. (Currently Amended) An article of manufacture comprising:  
a recordable medium having recorded thereon a plurality of machine executable  
programming instructions designed to program a host machine to enable the host machine to  
~~first translate a first plurality of representations of a plurality of parts of a plurality  
of sub-assemblies of a mechanical design assembly to a second plurality of  
representations of the parts of the sub-assemblies of the mechanical design  
assembly~~  
translate a first representation of parts or sub-assemblies of a mechanical design  
assembly into a second, different representation of the parts or sub-assemblies of the  
mechanical design assembly; and  
~~thereafter, translate one or more assembly constraints of said assembly by  
correspondingly constraining geometric entities within said translated representations that  
are counterpart to geometric entities of said pre-translation representation constrained by  
said one or more assembly constraints, where each assembly constraint defines an  
association between two or more parts or sub-assemblies of the mechanical design  
assembly and where translating assembly constraints includes converting a data format of  
the assembly constraints from a first format of a first design system to a second, different  
format of a second, different design system.~~
8. (Currently Amended) The article of manufacture of claim 7, wherein said programming  
instructions further enable the host machine to track correspondence between ~~said first and said~~  
~~second plurality of representations of said parts and sub-assemblies of the mechanical design  
assembly during said translation~~the first and second representations during the translation.
9. (Currently Amended) The article of claim 7, wherein said programming instructions  
enable the host machine to  
identify said counterpart geometric entities within said translated representations that are  
counterpart to geometric entities of said pre-translation representations constrained by said one  
or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations.

10. (Currently Amended) The article of claim 9, wherein said programming instructions enable the host machine to

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometry/geometric entities within said pre-translation representations, ~~constrained by said one or more assembly constraints~~, and

for each of said identified geometry/geometric entities within said pre-translation representations, apply ~~its~~the selected spatial sampling points to corresponding geometric entities within said translated representations to identify ~~its~~the counterpart geometry/geometric entities.

11. (Currently Amended) A computer system comprising:

a storage medium having stored therein a plurality of programming instructions to ~~first translate a first plurality of representations of a plurality of parts of a plurality of sub-assemblies of an mechanical design assembly to a second plurality of representations of the parts of the sub-assemblies of the mechanical design assembly translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly, and thereafter, translate one or more assembly constraints of said assembly by correspondingly constraining geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representation constrained by said one or more assembly constraints, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format~~

of a second, different design system; and

a processor coupled to the storage medium to execute the programming instructions.

12. (Currently Amended) The computer system of claim 11, wherein said programming instructions are further designed to track correspondence between ~~said first and said second plurality of representations of said parts and sub-assemblies of the mechanical design assembly during said translation~~ the first and second representations during the translation.

13. (Currently Amended) The computer system of claim 11, wherein said programming instructions are designed to

identify ~~said counterpart~~ geometric entities within said translated representation that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations.

14. (Currently Amended) The computer system of claim 13, wherein said programming instructions are designed to

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified ~~geometry~~ geometric entities within said pre-translation representations, ~~constrained by said one or more assembly constraints~~, and

for each of said identified ~~geometry~~ geometric entities within said pre-translation representations, apply ~~its~~ the selected spatial sampling points to corresponding geometric entities within said translated representations to identify ~~its~~ the counterpart ~~geometry~~ geometric entities.

15. (Currently Amended) A method comprising:

determining geometric entities within a plurality of translated representations of sub-assemblies/partssub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies/partssub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined counterpart geometric entities within the translated representations of the sub-assemblies/partssub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly.

16. (Currently Amended) The method of claim 15, wherein said determining comprises identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

selecting a plurality of spatial sampling points for each of said identified geometry/geometric entities within said pre-translation representations, constrained by said one or more assembly constraints, and

for each of said identified geometry/geometric entities within said pre-translation representations, applying its/the selected spatial sampling points to corresponding geometric entities within said translated representations to identify its/the counterpart geometry/geometric entities.

17. (Currently Amended) An article of manufacture comprising:

a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machined to enable the host machine to determine geometric entities within a plurality of translated representations of sub-assemblies/partssub-assemblies and/or parts of a mechanical design assembly that are

corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies/partssub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies/partssub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly.

18. (Currently Amended) The article of claim 17, wherein said programming instructions enable the host machine to

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometry/geometric entities within said pre-translation representations, ~~constrained by said one or more assembly constraints~~, and

for each of said identified geometry/geometric entities within said pre-translation representations, apply ~~its~~the selected spatial sampling points to geometric entities within said translated representations to identify ~~its~~the counterpart geometry/geometric entities.

19. (Currently Amended) A computer system comprising:

a storage medium having therein a plurality of programming instructions to determine geometric entities within a plurality of translated representations of sub-assemblies/partssub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies/partssub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an

association between two or more parts or sub-assemblies of the assembly, and correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies/partssub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and  
a processor coupled to the storage medium to execute the program instructions.

20. (Currently Amended) The computer system of claim 19, wherein said programming instructions are designed to

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometry/geometric entities within said pre-translation representations, ~~constrained by said one or more assembly constraints~~, and

for each of said identified geometry/geometric entities within said pre-translation representations, apply ~~its~~the selected spatial sampling points to corresponding geometric entities within said translated representations to identify ~~its~~the counterpart geometry/geometric entities.

21. (New) The method of claim 1, wherein:

translating a first representation of parts or sub-assemblies into a second representation includes changing a modeling approach from a first modeling approach used to generate the first representation to a second modeling approach used to generate the second representation.

22. (New) The article of manufacture of claim 7, wherein:

to translate a first representation of parts or sub-assemblies into a second representation includes to change a modeling approach from a first modeling approach used to generate the first representation to a second modeling approach used to generate the second representation.